I claim:

85. (New Claim) **A method** for improving the combustion efficiency of a combustion mechanism operating with combustible fluid hydrocarbon fuel, through reducing the density of said combustible fuel while increasing the density of the combustion air, without effecting the for the mechanism specified fuel or combustion air volumes, thereby significantly changing the ratio of fuel mass versus combustion air mass, hence increasing oxygen volume percentage, during the process of ignition and combustion of all said combustible fuels, including natural gas and propane gas, in combustion mechanisms having a combustion area and at least one burner therein for converting said fuel into heat, thrust, torque, or other form of energy, comprising:

a) providing a combustion mechanism operating in a combustion turbine system;
b) providing combustible fluid hydrocarbon fuel as fuel for said combustion mechanism;
c) directing said fuel through the fuel supply conduit defining a heat exchanger assembly that extends through a heat transfer zone related to the combustion mechanism;
d) reducing the density of said fuel by heating the fuel as it flows through said heat exchanger assembly to an optimal fuel operating temperature level ranging between 100 degrees Fahrenheit and the fuel's flash point or auto ignition level;
e) maintaining a constant volume of density reduced combustible fuel to the combustion area of said combustion mechanism;
f) providing combustion air for the combustion process in said combustion mechanism;
g) directing said combustion air through an air supply conduit defining a heat exchanger assembly that is operated in a heat transfer zone of said combustion mechanism;
h) increasing the density of said combustion air by cooling the combustion air as it flows through said heat exchanger assembly to an optimal air operating temperature level of between ambient and minus 40 degrees Fahrenheit;
i) maintaining a constant volume of density increased combustion air to the combustion area of said combustion mechanism.

86. (New Claim) A method according to Claim 85, wherein at least one of said heat transfer zones is related to the exhaust gas vent area of the combustion turbine system.

87. (New Claim) A method according to Claim 85, wherein at least one of said heat transfer zones is related to the combustion area of the combustion turbine system.

88. (New Claim) A method according to Claim 85, wherein said heat transfer zones are operated from a source other than the combustion or exhaust gas vent area of the combustion turbine system.

89. (New) A method according to Claim 85, wherein the combustion mechanism converts the oxidation mixture of fuel and air into high temperature, high velocity combustion products to operate a single or dual cycle combustion turbine system.

90. (New) A method according to Claim 85, wherein the combustion mechanism converts the oxidation mixture of fuel and air into high temperature, high velocity combustion products to operate a turbine engine.

91. (New) A method according to Claim 85, wherein at least one of the two heat exchanger assemblies is operational.

92. (New) A method according to Claim 85, wherein the fluid hydrocarbon fuel is suspended coal dust, or a coal dust slurry.

93. (New) A method according to Claim 85, wherein the fluid hydrocarbon fuel is a liquid fuel.

94. (New Claim) **A device** for improving the combustion efficiency of a combustion mechanism operating with combustible fluid hydrocarbon fuel, through reducing the density of said combustible fuel while increasing the density of the combustion air, without effecting the for the mechanism specified fuel or combustion air volumes, thereby significantly changing the ratio of fuel mass versus combustion air mass, hence increasing oxygen volume percentage, during the process of ignition and combustion of all said combustible fuels, including natural gas and propane gas, in combustion mechanisms having a combustion area and at least one burner therein for converting said fuel into heat, thrust, torque, or other form of energy, comprising:

a) a combustion mechanism operating in a combustion turbine system;

b) a fuel supply conduit defining a heat exchanger assembly located in a heating zone related to the combustion area of the mechanism, providing the means to maintain a constant supply of combustible fluid hydrocarbon fuel to the combustion area of said mechanism at a pre selected optimal operating temperature level ranging between 100 degrees Fahrenheit and the fuel's flash point or auto ignition level;

c) a combustion air supply conduit defining a heat exchanger assembly located in a cooling zone related to the combustion mechanism, providing the means to maintain a constant volume of combustion air to the combustion area of said mechanism at a preselected optimal operating temperature level ranging between ambient and minus 40 degrees Fahrenheit.

95. (New) A device according to Claim 94, wherein at least one heat transfer zone is related to the exhaust gas vent area of the combustion turbine system.

96. (New) A device according to Claim 94, wherein at least one heat transfer zone is related to the combustion area of the combustion turbine system.

97. (New) A device according to Claim 94, wherein the heat transfer zones are related to an operating source other than the combustion or exhaust gas vent area of the combustion turbine system.

98. (New) A device according to Claim 94, wherein said means to maintain a continuous volume of fluid hydrocarbon fuel to the burners in the combustion area of the mechanism at said optimal fuel temperature level operates within a preselected operating temperature range between 165 degrees and 900 degrees Fahrenheit.

99. (New) A device according to Claim 94, wherein a preselected volume of combustion air is routed through a contained duct system which provides temperature control and the means for density increase of said combustion air volume by cooling the air to a preselected temperature range below ambient prior to combustion.

100. (New) A device according to Claim 94, which provides the means for the combustion mechanism to convert an oxidation mixture of fuel and air into high temperature, high velocity combustion products for the purpose of operating a turbine system..

101. (New) A device according to Claim 94, wherein the combustion mechanism converts the oxidation mixture of fuel and air into high temperature, high velocity combustion products to operate a single or dual cycle combustion turbine system.

102. (New) A device according to Claim 94, wherein the combustion mechanism converts the oxidation mixture of fuel and air into high temperature, high velocity combustion products to operate a turbine engine.

103. (New) A device according to Claim 94, wherein the fluid hydrocarbon fuel is a fluid fuel other than natural gas or propane gas.

104. (New) A device according to Claim 94, wherein the fluid hydrocarbon fuel is suspended coal dust, or a coal dust slurry.

105. (New) A device according to Claim 94, wherein at least one of the two heat exchanger assemblies is operational.